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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/708,429 | 03/03/2004 | Chien-Hua Tsai | NAUP0569USA | 2428 |

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(NAIPC) NORTH AMERICA INTERNATIONAL PATENT OFFICE
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MERRIFIELD, VA 22116

EXAMINER

RINEHART, KENNETH

ART UNIT PAPER NUMBER

3749

DATE MAILED: 01/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,429

Applicant(s)

TSAI ET AL. *CH*

Examiner

Kenneth B Rinehart

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 refers to "adjusting a flow rate of the solvent in the scrubber to in-crease a concentration of the IPA vapor in the cleaning device and thus obtain good uniformity for drying the wafers" which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In paragraph 19, the applicant states "With an increase of the water flow rate, the amount of the IPA vapor dissolved in the scrubber 30 is also increased. If the IPA/H₂O gas mixture is discharged at a constant rate from the exhaust outlet 40, the concentration of the IPA vapor to be discharged from the exhaust outlet 40 is deduced (reduced??) when the water flow rate is in-creased." The examiner agrees with this statement as a scrubber is designed to reduce emissions, and if the flow rate of the scrubbing solution is increased the emissions should be reduced to a greater extent. Paragraph 19 continues, "Accordingly, the amount of the IPA vapor ex-hausted from the exhaust outlet 18 of the cleaning device 10 should be reduced when the amount of the IPA vapor 30 is reduced." The examiner does not understand this statement. Applying the conservation of mass to the

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situation, the mass flow in should equal the mass flow out. The amount of the IPA vapor in exhaust 40 is less than that in line 18, and this is due to the scrubber. The amount of water vapor in flow 40 is greater than in flow 18, and this is due to the scrubber. Overall, the mass flow in at 20 should equal the amount out at 40. Consequently, the examiner does not understand why the amount of IPA vapor exhausted from outlet 18 is reduced when the amount of IPA vapor 30 is reduced. Therefore, the examiner does not see how one skilled in the art could make and use the invention as the IPA in 30 has no influence on the IPA at 18. Claim 8 refers to “reducing an exhaust rate of the IPA vapor from the cleaning device to increase a concentration of the IPA vapor in the cleaning device and thus obtain good uniformity for drying the wafers” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Per paragraph 17 if the amount of IPA vapor exhausted from outlet 18 is reduced, then it stands to reason that the amount of water vapor removed is reduced, and so the amount of water vapor in the cleaner increases and the efficiency of the wafer drying is reduced. Yet the disclosure indicates the contact time with the IPA increases even though the water vapor increases. From the disclosure it appears that the entire purpose of the exhaust outlet 18 is to exhaust gas stream 20 which includes water vapor and IPA vapor to maintain a sufficient concentration of fresh IPA vapor in the cleaning device. Whether or not the law of the conservation of mass is in effect, it is not readily apparent to this examiner what mechanism is being used to reduce the exhaust rate of the IPA vapor from the cleaning device.

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to driers in general: Bergman et al (6286231), Hsu (6658764), Olesen et al (6122837), Boyce et al (6306197).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBR


KENNETH RINEHART
PRIMARY EXAMINER